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A COMPARISON OF THE SUSCEPTIBILITIES OF THREE GROUPS OF NAVAL AVIATION PERSONNEL TO SYMPTOMATOLOGY OF MOTION SICKNESS

by

Robert S. Kennedy and Ashton Graybiel

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A standardized procedure for investigating individual susceptibility to motion sickness has been developed at the U. S. Naval School of Aviation Medicine. This procedure involves the use of the Pensacola Slow Rotation Room which is a circular, windowless room, having a diameter of 15 feet and a height of 7 feet, constructed around the center post of the human centrifuge. A so-called dial test is used to standardize the stress a S experiences while rotating at 7.5 rpm. Five dials are so placed in relation to the S that, to set a needle on a dial at a given number, on signal, he is required to move head and trunk to five different extreme positions. A sequence consists of setting five dials, one every six seconds, followed by a six-second rest period.

There were three groups of personnel employed in the present study: Group I was composed of 100 incoming flight students whose previous flight experience was negligible; Group II consisted of 40 ground school instructors who were currently flying only the minimum number of hours necessary to maintain their proficiency (normally, four to six hours per month); and 22 military test pilot school graduates currently engaged in flight testing high performance aircraft constituted Group III. Each of the 162 Ss was tested individually, and none was aware of the performance of those tested prior to him.

The criteria taken as indicative of motion sickness were requests to terminate rotation because of sickness or frank vomiting before completion of 20 sequences of dial settings. As may be seen in Table I, 10 per cent of Group I vomited while no S in Groups II or III vomited. In addition, 67 per cent of Group I, 30 per cent of Group II, and 5 per cent of Group III requested termination of the test because of having symptoms of motion sickness.

From the results it may be concluded that the experienced aviators in Groups II and III have a higher resistance to motion sickness than the students in Group I. Further, the test pilots, a highly selected group of naval aviators, evidence higher resistance than the aviators who are in mainly non-flying billets and who do not presently fly high performance aircraft. In the opinion of the authors, there are at least two factors responsible for these differences.

1) Natural Selection:

a) Of the untrained students--those with a higher basic susceptibility tend to select themselves out of aviation. b) Of the proficiency billet aviators--those with a higher susceptibility tend either not to apply or not be selected for test pilot training.

2) Habituation:

a) Of the students--those who initially experience problems with motion sickness may increase their tolerance with repeated exposure in the course of training. b) Of the proficiency billet aviators--the difference between this group

and the test pilot group tends to indicate that flying only a minimum number of hours per month, while perhaps sufficient to maintain proficiency in aircraft, is not enough to maintain the resistance to bizarre sensory inputs that is seen in persons flying a great deal in high performance aircraft.

Table I

Comparison between Three Groups of Naval Aviation Personnel in Response to Standard Screening Test in Slow Rotation Room

	Incoming Flight Students	Aviators in Proficiency Billets	Graduates of Test Pilot School
Number of Subjects	100	40	22
Mean Age	22.3	29.6	32.7
Per Cent Sick	67	30	5
Per Cent Vomiting	10	0	0